

WHAT IS CLAIMED IS:

1. A method of arbitrating access to a common bus, comprising:
 - (a) setting a prescribed standby period for each of a first set of modules;
 - (b) identifying a second set of modules, among the first set of modules, whose actual standby periods have reached the corresponding prescribed standby periods; and
 - (c) allowing each of the second set of modules to send a request to access the common bus.
2. The method of claim 1, wherein the prescribed standby period for each of the first set of modules is set by a system user and is stored in a message transmission system.
3. The method of claim 1, further comprising:
 - (d) selecting a final module, among the second set of modules, using a selecting rule; and
 - (e) sending an acknowledgment signal, to the selected final module, granting access to the common bus.
4. The method of claim 3, wherein the selecting rule is a round robin method.

5. A method of arbitrating access to a common bus, comprising:

(a) setting an initial value of a prescaler and an initial value of an interval, for each of a first set of modules, wherein an arithmetic product of the initial prescaler value and the initial interval value, of each of the first set of modules, represents a prescribed standby period for the respective module;

(b) identifying a second set of modules whose respective actual standby periods have reached the prescribed standby periods; and

(c) allowing each of the second set of modules to send a request to access the common bus.

6. The method of claim 5, wherein the initial prescaler value and the initial interval value, for each of the first set of modules, are set by a system user and are stored in a message transmission system.

7. The method of claim 5, further comprising:

(d) selecting a final module, among the second set of modules, using a selecting rule; and

(e) sending an acknowledgment signal, to the selected final module, granting access to the common bus.

8. The method of claim 7, wherein the selecting rule is a round robin method.

9. The method of claim 5, wherein the identifying step (b) further comprises:

(b1) reducing the prescaler value, corresponding to each of the first set of modules, and determining whether the reduced prescaler value is equal to a first predetermined value, for every transpiring first period;

(b2) reducing the interval value, corresponding to each of the first set of modules, and determining whether the reduced interval value is equal to a second predetermined value, for every transpiring second period, if it is determined in step (b1) that the reduced prescaler value is equal to the first predetermined value; and

(b3) associating each of the first set of modules, having a corresponding interval value equal to the second predetermined value, as a member of the second set of modules.

10. The method of claim 9, further comprising resetting the reduced prescaler value to the initial prescaler value and repeating step (b1), if it is determined in step (b2) that the reduced interval value is not equal to the second predetermined value.

11. An apparatus for arbitrating access to a common bus, comprising:

a standby period storage device that stores a standby period of each of a first set of modules;

an access authorizing block that identifies a second set of modules whose standby periods are determined to be expired and allows each of the second set of modules to send a request to access the common bus; and

a request storage device that stores the access request made by each of the second set of modules.

12. The apparatus of claim 11, wherein the standby period of each of the first set of modules is initially set by a system user.

13. The apparatus of claim 11, wherein the access authorizing block selects a final module, among the second set of modules, using a selecting rule and sends an acknowledgment signal to the selected final module granting access to the common bus.

14. The apparatus of claim 13, wherein the selecting rule is a round robin method.

15. A method of arbitrating access to a common bus shared by a plurality of modules, comprising:

assigning a first value and a second value to each of the plurality of modules;

repeatedly changing the first value until the first value meets a first condition, for each of the plurality of modules;

changing the second value and determining whether the second value meets a second condition, for each of the plurality of modules having a corresponding first value that meets the first condition; and

transmitting an access request to a bus arbiter, requesting access to the common bus, from each of the plurality of modules having a corresponding second value that meets the second condition.

16. The method of claim 15, further comprising:

reassigning the first value to an initial value, for each of the first modules having a corresponding second value that is determined not to meet the second condition;

repeatedly changing the first value until the first value meets the first condition, for each of the plurality of modules;

changing the second value and determining whether the second value meets the second condition, for each of the plurality of modules having a corresponding first value that meets the first condition; and

transmitting the access request to the bus arbiter, requesting access to the common bus, from each of the plurality of modules having a corresponding second value that meets the second condition.

17. The method of claim 16, further comprising:

prioritizing the access requests received from the plurality of modules, according to a prioritization scheme; and

providing the plurality of modules access to the common bus, according to the prioritization scheme.

18. The method of claim 17, wherein the prioritization scheme is a round robin scheme.

19. The method of claim 15, wherein the bus arbiter provides both parallel and serial communication access to the common bus.

20. The method of claim 15, wherein each of the plurality of modules is separately assigned variable initial values for the first and second values.

21. The method of claim 1, wherein the equivalency of the actual standby period and the prescribed standby period, for each of the first set of modules, indicates that a corresponding standby period has expired.

22. The method of claim 5, wherein the equivalency of the actual standby period and the prescribed standby period, for each of the first set of modules, indicates that a corresponding standby period has expired.